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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	32

Application Number	09/692,846
Filing Date	October 19, 2000
First Named Inventor	Konopka, Courtney C.
Art Unit	2654
Examiner Name	Edouard, Patrick N.
Attorney Docket Number	66161/7114

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
- [x] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation
- [ ] Change of Correspondence Address
- [ ] Terminal Disclaimer
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- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [x] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	FITCH, EVEN, TABIN & FLANNERY		
Signature			
Printed name	Martin R. Bader		
Date	January 17, 2006	Reg. No.	54,736

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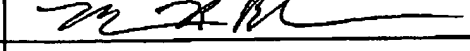
Signature			
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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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JAN 17 2006

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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($)	500.00

Complete If Known	
Application Number	09/692,846
Filing Date	October 19, 2000
First Named Inventor	Konopka, Courtney C.
Examiner Name	Edouard, Patrick N.
Art Unit	2654
Attorney Docket No.	66161/7114

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 06-1135 Deposit Account Name: Fitch, Even, Tabin & Flannery

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims _____ - 20 or HP = _____ x Fee ($) _____ = Fee Paid ($) _____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims _____ - 3 or HP = _____ x Fee ($) _____ = Fee Paid ($) _____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims Fee ($) _____ Fee Paid ($) _____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets _____ - 100 = _____ Extra Sheets / 50 = _____ Number of each additional 50 or fraction thereof (round up to a whole number) x Fee ($) _____ = Fee Paid ($) _____

4. OTHER FEE(S) Fees Paid ($)

Non-English Specification, $130 fee (no small entity discount) _____

Other (e.g., late filing surcharge): Appeal Brief Fee Under 41.20(b)(2) $500.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 54,736	Telephone 858-552-1311
Name (Print/Type)	Martin R. Bader		Date January 17, 2006

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JAN 17 2006

Attorney Docket No. 66161/7114

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Konopka, Courtney C.
Serial No.:	09/692,846
Filed:	October 19, 2000
For:	NATURAL LANGUAGE INTERFACE CONTROL SYSTEM
Group Art Unit:	2654
Examiner:	Edouard, Patrick N.
Customer No.:	22242
Conf. No.:	6249

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01/17/2006
Date

Martin R. Bader
Reg. No. 54,736

Attorney for Applicants

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Mail Stop: APPEAL BRIEF - PATENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant submits this appeal brief under 37 C.F.R. § 41.37 appealing the final rejection of Claims 1-17, 26-30 and 32-44 in the office action mailed August 17, 2005.

01/19/2006 EFLORES 00000079 061135 09692846

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(1) Real Party in Interest

The real parties in interest in the subject application are Sony Electronic Inc. and Sony Corporation.

(2) Related Appeals and Interferences

No related appeals or interferences are known to Appellant.

(3) Status of Claims

Claims 1-25 were submitted for examination in the application filed on October 19, 2000.

Claims 26-56 were added by amendment.

Claims 1, 5-10, 15-17, and 26 were amended.

Claims 18-25, 31 and 45-56 were canceled.

Claims 1-17, 26-30 and 32-44 are pending.

Claims 1-17, 26-30 and 32-44 are appealed.

Claim 17 stands rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,408,272 B1 *(White et al)*.

Claims 1-16, 26-30 and 32-44 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,324,512 B1 *(Jungua et al.)* in view of Hands free Continuous Speech Recognition in Noisy Environment Using a Four Microphone Array *(Giuliani et al.)* further in view of U.S. Patent No. 6,408,272 B1 *(White et al.)*.

(4) Status of Amendments

No amendments have been filed subsequent to the final rejection.

(5) Summary of Claimed Subject Matter

Independent Claims 1, 6, 9, 10, and 26 are directed to a natural language interface control system 102 for controlling a plurality of devices 114. The system includes a micro-phone or micro-phone array 108 that is coupled to a feature extraction module 202. The feature extraction module 202 is coupled to the speech recognition module 206. The speech recognition module 206 is coupled to a natural language interface module 222. The natural language interface module 222 is coupled to a device interface 210 and is utilized to operate a plurality of devices 114 coupled to the device interface 210. Claims 1, 6, and 26 state that the natural language interface abstracts each of the devices into a respective one of a plurality of different grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices. Claim 9 includes a grammar module 218 for storing different grammars for each of the plurality of devices. Claim 10 includes an acoustic model module 220 for storing different acoustic models for each of the plurality of devices. See Fig. 2 for one embodiment of the invention.

Independent claims 7 and 8 are directed to a natural language interface control system 102 for controlling a plurality of devices 114. The system

includes a micro-phone or micro-phone array 108 that is coupled to a feature extraction module 202. The feature extraction module 202 is coupled to the speech recognition module 206. The speech recognition module 206 is coupled to a natural language interface module 222. The natural language interface module 222 is coupled to a device interface 210 and is utilized to operate a plurality of devices 114 coupled to the device interface 210. Claim 7 requires that the natural language interface module search for non-prompted open ended user requests upon the receipt and recognition of an attention word. Claim 8 requires that the natural language interface module context switch grammars, acoustic models, and lexica upon receipt and recognition of an attention word. See Fig. 2 for one embodiment of the invention.

Independent claim 17 is a method of speech recognition. The method includes searching for an attention word based upon a first set of models, grammars and lexica and switching, upon finding the attention word to a second context including a second set of models, grammars and lexica, to search for an open-ended user request.

(6) Grounds of Rejection to be Reviewed

The following issues are presented for review:

Issue 1: whether independent claim 17 is anticipated by U.S. Patent No. 6,408,272 (*White et al.*);

Issue 2: whether claims 1-6, 11-16, 26-30 and 32-44 are patentable over U.S. Patent No. 6,324,512 B1 (*Junqua et al.*) in view of Hands free Continuous Speech Recognition in Noisy Environment Using a Four Microphone Array *(Giuliani et al.)* further in view of U.S. Patent No. 6,408,272 B1 *(White et al.)*; and

Issue 3: whether claim 7 is patentable over U.S. Patent No. 6,324,512 B1 (*Junqua et al.*) in view of Hands free Continuous Speech Recognition in Noisy Environment Using a Four Microphone Array *(Giuliani et al.)* further in view of U.S. Patent No. 6,408,272 B1 *(White et al.)*.

Issue 4: whether claim 8 is patentable over U.S. Patent No. 6,324,512 B1 (*Junqua et al.*) in view of Hands free Continuous Speech Recognition in Noisy Environment Using a Four Microphone Array *(Giuliani et al.)* further in view of U.S. Patent No. 6,408,272 B1 *(White et al.)*.

Issue 5: whether claims 9 and 10 are patentable over U.S. Patent No. 6,324,512 B1 (*Junqua et al.*) in view of Hands free Continuous Speech Recognition in Noisy Environment Using a Four Microphone Array *(Giuliani et al.)* further in view of U.S. Patent No. 6,408,272 B1 *(White et al.)*.

(7) Argument

Appellant submits that the claims of Group I, II, III, IV, and V stand or fall separately from any of the claims from each of the other groups. Appellant argues below under separate issues why the claims of the each

group are believed to be separately patentable. As referred to herein the claims are divided into the following groups:

Group I: claims 1-6, 11-16, and 26-30 and 32-44;

Group II: claim 7;

Group III: claim 8;

Group IV: claims 9 and 10; and

Group V: claim 17.

Issue 1: independent claim 17 (Group V) is not anticipated by *White et al.*

The final rejection errs in stating that claim 17 (Group V) is anticipated by White et al.

M.P.E.P. § 2131 states that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

White et al. describe a distributed voice user interface system. The system includes a local device that receives speech input (e.g., a command) issued from a user. The local device performs preliminary processing of the speech input and determines whether it can respond to the command by itself. If not, the local device initiates communication with a remote system for further processing of the speech input.

The final rejection cites Column 6, lines 31-55 of *White et al.* as teaching the elements of claim 17. This

section of *White et al.* teaches a local device that has limited voice recognition capabilities, however, is capable of "word spotting" by scanning speech for the occurrence of one or more "keywords". Because the local device has a limited vocabulary (e.g., less than 100 words) it is only capable of responding to relatively simple commands, instructions, directions or requests from a user. When the local device does not recognize any of the keywords it sends the speech over a network to a remote device that has more extensive speech recognition capabilities.

In contrast, Applicants' independent claim 17 recites "searching for an attention word based on a first context based on a first context including a first set of models, grammars, and lexica" and "switching, upon finding the attention word, to a second context to search for an open-ended user request, wherein the second context includes a second set of models, grammars, and lexicons." As stated in Applicants' specification at page 10, lines 1-30, the attention word notifies the Natural Language Interface Controller System (NLICS) that following the attention word, a request will arrive. As such, the microphone arrays employed by the NLICS only have to search for the attention word or words within the physical space defined by the microphone arrays. For example, if the attention word is programmed as "Mona", then the user's request becomes "Mona, I wanna watch TV." Furthermore, individual users may have separate attention words specific to that user. For example, within a household, a first

user's attention word is "Mona" while a second user's attention word is "Thor". When the NLICS hears the attention word "Mona", the system assumes that the first user is issuing the command, and so the NLICS will load the grammars and acoustic models corresponding to that user (context switching).

It appears the final rejection has equated the "keywords" of *White et al.*, to "searching for an attention word based on a first context including a first set of models, grammars, and lexica," as claimed by Applicant. However, when a "keyword" is found in *White et al.* the local device will perform the command that was received from the user. In contrast, the "attention word", functions, for example, to identify the user, to avoid false detections of requests and to distinguish between regular conversation and background noise. Thus, the "keywords" of *White et al.* are not the same as an "attention word" as recited in claim 17. The "keywords" of *White et al.* represent the entire vocabulary of commands for a local device where the "attention word" of Applicants claim is used to notify the Natural Language Interface Controller System (NLICS) that, for example, following the attention word, a request will arrive. This provides for an efficient voice recognition system. Therefore, *White et al.* does not teach or suggest "searching for an attention word based on a first context including a first set of models, grammars, and lexica."

On page 3 of the final rejection, the Examiner states that *White et al.* at least recognizes a "wake up" command and points to Column 13, line 60 through Column 14, line 10 of *White et al.* to support the position that the system searches for a keyword and utilizes remote resources to perform the needs that are associated with the keyword upon finding the keyword/attention word.

First, as explained above, while *White et al.* may search for "keywords", the system of *White et al.* only utilizes the remote resource when a word or phrase can not be identified by the local resources. Thus, the system of *White et al.* does not perform the step of "switching, upon finding the attention word, to a second context to search for an open-ended user request, wherein second context includes a second set of models, grammar and lexicons," as is claimed by Applicants. The only time the system of *White et al.* switches to the remote resources is when a phrase is not identified.

Additionally, the "wake up" command of *White et al.* is only one of many types of triggers that can activate the system (e.g., a manual input device, time lapse or voice activation). However, *White et al.* does not state that there is a change in context that includes a second set of models, grammars and lexicons that occurs upon receipt of the "wake up" command. There is no indication that the set of models, grammars and lexicons are any different then under normal operation. That is, simply by having the "wake up" command does not teach or suggest the

Additionally, the remote voice recognition system of *White et al.* is only utilized when the local device does not recognize the command issued by a user. It appears the final rejection has equated sending the recorded voice command to the remote device of *White et al.* for further processing to Applicants' claimed "switching, upon finding the attention word, to a second context." As described above, the system of *White et al.* only uses the remote device (i.e., switches to a different context) when the command is not understood, not when the system does find a "keyword" and is capable of responding to the request or command without utilizing the remote system.

Thus, *White et al.* do not disclose "switching, upon finding the attention word, to a second context to search for an open-ended user request, wherein second context includes a second set of models, grammar and lexicons," as is claimed by Applicants. As described above, this provides for an efficient method of voice recognition including features not taught or suggested by *White et al.* That is, *White et al.* only switches to utilizing the remote system when a command is not understood, not "upon finding the attention word," as claimed by Applicants. Therefore, White et al. do not anticipate Applicants' claim 17 because not each and every element as set forth in the claim is found, either expressly or inherently described, in the teachings of *White et al.*

step of "switching, upon finding the attention word, to a second context to search for an open-ended user request, wherein second context includes a second set of models, grammar and lexicons."

Thus, for all of the reasons stated above, Applicants respectfully submit the rejection errs in finding claim 17 anticipated by *White et al.*

Issue 2: independent claims 1-6, 11-16, 26-30 and 32-44 (Group I) are patentable over *Junqua et al.* in view of *Giuliani et al.* and further in view of *White et al.*

The final rejection errs in stating that the claims of Group I are obvious in view of combination of cited prior art.

M.P.E.P. 2143 sets forth the requirements for a prima facie case of obviousness:

> "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claimed limitations (emphasis added)."

Junqua et al. disclose a voice recognition system where users can control a television and/or recorder. The system is used to hold a natural language dialog with users.

Giuliani et al. describe enhancement techniques for speaker-independent continuous speech recognition. Such techniques are used for recognition improvement of cleanly input speech or for speech generated in noisy conditions. These techniques involve acquiring a signal through an array of microphones, compensating for a corresponding time delay, enhancing the acquired signal by a spectrum weighting process, parsing the enhanced signal by means of a digital filter, and matching segments of the parsed signal to various hidden Markov models.

Claim 1 recites in part "wherein the natural language interface module abstracts each of the plurality of devices into a respective one of the different grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices." The rejection states that column 2, line 2 through Column 3, line 35 of *Junqua et al.* shows that *Junqua et al.* teaches the above recited element of claim 1.

The section cited by the Examiner states that the system of *Junqua et al.* includes a parser that supplies its output to a unified access controller module used to send commands to a digital tuner 40 or recorder 44. The parser is a goal-oriented parser that has a pre-defined database of grammars stored within it. If the unified access controller does not understand a command, using its dialog manager, the unified access controller prompts the user for additional information. If the response from a user is sufficiently refined to constitute a command, the unified

access controller sends a command to the television. This section of *Junqua et al.* teaches having a pre-defined database of grammars and a system that can prompt a user for additional information if a command is not understood. However, this section of *Junqua et al.* does not teach or suggest "wherein the natural language interface abstracts each of the plurality of devices into a respective one of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices," such as is claimed by Applicant.

The rejection states on page 4 that "the grammar is necessarily specific to each unit wherein the recorder is associated with specific recording grammar, and the tuner is associated with channel selection grammar." This, however, is a conclusion by the Examiner that is not supported by the specification of *Junqua et al.* There is no reason why the unified access controller module must abstracts each of the plurality of devices into a respective one of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices. Furthermore, while the Examiner makes this assumption, *Junqua et al.* does not teach or suggest that this is how their unified access controller module functions.

As described in Applicant's specification at the paragraph beginning on page 10, line 30 "[o]ne feature that enables the NLICS 102 to function efficiently is that each of the devices 114 coupled to the NLICS 102 are abstracted

into a separate device abstraction such that separate grammars and lexicons are stored for each of the devices 114. For example, as the natural language interface module determines that the request is for the DVD player, a grammar and lexicon specific to that particular context...is used to aid in the processing of arriving acoustic data within the speech recognition module." *Junqua et al.* does not teach or suggest a system with increased efficiency having a natural language interface module that "abstracts each of the plurality of devices into a respective one of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices," such as is claimed by Applicant.

Further, Applicant submits that neither *Giuliani et al.* nor *White et al.* teach or suggest a system "wherein the natural language interface abstracts each of the plurality of devices into a respective one of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices," such as is claimed by Applicant. Thus, the final rejection does not establish a *prima facie* case of obviousness for the claims of Group I.

Therefore, *Junqua et al.*, *Giuliani et al.*, and *White et al.* do not, individually or in combination, teach or suggest all of the claim limitations of independent claims 1, 6 and 26. Thus, Applicant respectfully submits the rejection errs in the rejection of the claims of Group I as the rejection fails to present a *prima facie* case of obviousness.

Issue 3: independent claim 7 (Group II) is patentable over *Junqua et al.* in view of *Giuliani et al.* and further in view of *White et al.*

The final rejection errs in stating that the claims of Group II are obvious in view of combination of cited prior art.

Independent claim 7 recites "wherein the natural language interface module searches for the non-prompted, open-ended, natural language requests upon the receipt and recognition of an attention word." The final rejection has cited various sections of *White et al.* and it appears the final rejection is equating the "word spotting" and "keywords" of *White et al.* to Applicant's claimed "attention word." As described above with reference Issue I, *White et al.* does not teach or suggest an "attention word" as claimed by Applicant.

Additionally, *White et al.* does not teach or suggest a system including a natural language interface that "searches for the non-prompted, open-ended, natural language requests upon the receipt and recognition of an attention word." The system is *White et al.* is designed to recognize speech only at an elementary level, for example, by keyword searching. For this purpose, the speech recognition engine may comprise a keyword search component which is able to identify and recognize a limited number of keywords (See *White et al.* column 12, lines 14-17). If a keyword is recognized, a command is executed, however, the recognition of the keyword does not prompt the system of

White et al. to search "for the non-prompted, open-ended, natural language requests upon the receipt and recognition of an attention word," such as is claimed by Applicant.

Thus, *White et al.* does not teach or suggest a system "wherein the natural language interface module searches for the non-prompted, open-ended, natural language requests upon the receipt and recognition of an attention word." Applicant further submits that neither *Junqua et al.* nor *Giuliani et al.* teach this claimed element.

Therefore, *Junqua et al.*, *Giuliani et al.*, and *White et al.* do not, individually or in combination, teach or suggest all of the elements of claim 7. Thus, Applicant respectfully submits the rejection errs in the rejection of the claim of Group II as the rejection fails to present a *prima facie* case of obviousness.

Issue 4: independent claim 8 (Group III) is patentable over *Junqua et al.* in view of *Giuliani et al.* and further in view of *White et al.*

The final rejection errs in stating that the claims of Group III are obvious in view of combination of cited prior art.

Independent claim 8 recites "wherein the natural language interface module context switches grammars, acoustic models, and lexica upon receipt and recognition of an attention word." The Examiner has cited various sections of *White et al.* and it appears the Examiner is equating the "word spotting" and "keywords" of *White et al.* to Applicant's claimed "attention word." As described

above with reference Issue I, *White et al.* does not teach or suggest an "attention word" as claimed by Applicant. More specifically, *White et al.* does not switch grammars, acoustic models, and lexica upon receipt of a keyword, but performs a command upon recognition of a keyword.

Thus, *White et al.* does not teach or suggest a system "wherein the natural language interface module context switches grammars, acoustic models, and lexica upon receipt and recognition of an attention word," as is claimed by Applicant. Applicant further submits that neither *Junqua et al.* nor *Giuliani et al.* teach the claimed element.

Therefore, *Junqua et al.*, *Giuliani et al.*, and *White et al.* do not, individually or in combination, teach or suggest all of the elements of claim 8. Thus, Applicant respectfully submits the rejection errs in the rejection of the claim of Group III as the rejection fails to present a *prima facie* case of obviousness.

Issue 5: independent claims 9 and 10 (Group IV) are patentable over *Junqua et al.* in view of *Giuliani et al.* and further in view of *White et al.*

The final rejection errs in stating that the claims of Group IV are obvious in view of combination of cited prior art.

Independent claim 9 recites "a grammar module for storing different grammars for each of the plurality of devices." Independent claim 10 recites "an acoustic model

module for storing different acoustic models for each of the plurality of devices." As described above with reference to the rejection of the claims of Group I, *Junqua et al.* does not teach of suggest having different grammars or models for separate devices under control of the natural language interface control system. Having different models or grammars for each of the plurality of devices provides for an efficient speech recognition system that is able to context switch between grammars and models that are for each of the plurality of devices controlled by the system.

Similarly to above, the rejection appears to rely on the fact that the grammars or models are necessarily specific to each unit. This, however, is a conclusion by the Examiner that is not supported by the specification of *Junqua et al.* There is no reason why the system of *Junqua et al.* must have different grammars and models for each of the plurality of devices. Furthermore, while the Examiner makes this assumption, *Junqua et al.* does not teach or suggest that this is how their unified access controller module functions.

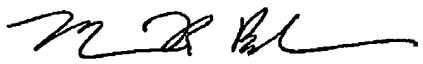
Therefore, *Junqua et al.*, *Giuliani et al.*, and *White et al.* do not, individually or in combination, teach or suggest all of the elements of claim 9 or 10. Thus, Applicant respectfully submits the rejection errs in the rejection of the claim of Group IV as the rejection fails to present a *prima facie* case of obviousness.

CONCLUSION

Appellant submits that the rejection errs in the rejection of the claims of Groups I, II, III, IV, and V; that the claims of Groups I, II, III, and IV are not rendered obvious by the combination of the cited references and the claim of Group V is not anticipated by the cited reference.

Appellant respectfully requests a reversal of the final rejection.

Respectfully submitted,



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(8) Appendix

Provided is a complete listing of all the pending claims involved with this appeal:

1. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars, wherein at least one of the different acoustic models and at least one of the different grammars is downloaded over a network;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user;

wherein the natural language interface module abstracts each of the plurality of devices into a respective one of the different grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices.

2. The system of Claim 1 further comprising the plurality of devices coupled to the natural language interface module.

3. The system of Claim 1 wherein the speech recognition module utilizes an N gram grammar.

4. The system of Claim 1 wherein the natural language interface module utilizes a probabilistic context free grammar.

5. The system of Claim 1 wherein the microphone array comprises said 3 dimensional microphone array further comprising a planar microphone array and at least one linear microphone array located in a different plane in space.

6. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user;

wherein the natural language interface abstracts each of the plurality of devices into a respective one of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices.

7. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user;

wherein the natural language interface module

searches for the non-prompted, open-ended user requests upon the receipt and recognition of an attention word.

8. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user;

wherein the natural language interface module context switches grammars, acoustic models, and lexica upon receipt and recognition of an attention word.

9. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module;

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; and

a grammar module for storing different grammars for each of the plurality of devices.

10. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module;

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices

coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; and

an acoustic model module for storing different acoustic models for each of the plurality of devices.

11. The system of Claim 1 wherein the device interface comprises a wireless device interface.

12. The system of Claim 1 further comprising an external network interface coupled to the natural language interface control system.

13. The system of Claim 1 further comprising a remote unit containing a first microphone array, the feature extraction module, the speech recognition module, and the natural language interface module, wherein said 3 dimensional microphone array includes the first microphone array.

14. The system of Claim 13 further comprising a base unit coupled to the remote unit.

15. The system of Claim 14 wherein the base unit includes a second microphone array, wherein said 3 dimensional microphone array includes the second microphone array.

16. The system of Claim 15 wherein the first

microphone array and the second microphone array implement said 3 dimensional microphone array.

17. A method of speech recognition comprising:

searching for an attention word based on a first context including a first set of models, grammars, and lexica; and

switching, upon finding the attention word, to a second context to search for an open-ended user request, wherein the second context includes a second set of models, grammars, and lexicons.

18-25. (Canceled)

26. A natural language interface control system for operating a plurality of devices comprising:

a first microphone;

a feature extraction module coupled to the first microphone;

a speech recognition module coupled to the feature extraction module;

a natural language interface module coupled to the speech recognition module;

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; and

an external network interface coupled to the natural language interface control system;

wherein the natural language interface abstracts each of the plurality of devices into a respective one of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices.

27. The system of Claim 26 further comprising the plurality of devices coupled to the natural language interface module.

28. The system of Claim 26 wherein the speech recognition module utilizes an N gram grammar.

29. The system of Claim 26 wherein the natural language interface module utilizes a probabilistic context free grammar.

30. The system of Claim 26 wherein the microphone array comprises a 3 dimensional microphone array comprising a planar microphone array and at least one linear microphone array located in a different plane in space.

Claim 31 (Canceled)

32. The system of Claim 26 wherein the natural language interface module searches for the non-prompted,

open-ended user requests upon the receipt and recognition of an attention word.

33. The system of Claim 26 wherein the natural language interface module context switches grammars, acoustic models, and lexica upon receipt and recognition of an attention word.

34. The system of Claim 26 further comprising a grammar module for storing different grammars for each of the plurality of devices.

35. The system of Claim 26 further comprising an acoustic model module for storing different acoustic models for each of the plurality of devices.

36. The system of Claim 26 wherein the device interface comprises a wireless device interface.

37. The system of Claim 26 further comprising a remote unit containing the first microphone array, the feature extraction module, the speech recognition module, and the natural language interface module.

38. The system of Claim 37 further comprising a base unit coupled to the remote unit.

39. The system of Claim 38 wherein the base unit

includes a second microphone array.

40. The system of Claim 39 wherein the first microphone comprises a first microphone array, and said first microphone array and the second microphone array implement a 3 dimensional microphone array.

41. The system of Claim 26 further comprising a central database coupled to said external network interface, said central database including at least one of grammars; speech models; device abstractions; programming information; and lexica.

42. The system of Claim 41 wherein said central database is coupled to said external network interface through an external network.

43. The system of Claim 42 further comprising:

a remote server coupled to said external network and to
said central database.

44. The system of Claim 42 further comprising:

another natural language interface control system; and
another external network interface coupled to said other natural language interface control system, and to said external network.